

The Minelab Musketeer Treasure Searcher

*An Adventure in
Treasure Hunting*

Musketeer Colt
Musketeer XS
Musketeer XS Pro



INSTRUCTION MANUAL

The Minelab Musketeer Treasure Searcher Instruction Manual

Contents

	Page No.
Introduction	3
List of Parts	4
Accessories	4
Assembling the Minelab Musketeers	5
Batteries	8
The Musketeer Colt	10
Controls	10
Operating Instructions	14
The Musketeer XS and XS Pro	15
Controls	15
Operating Instructions	20
Practicing the Controls	22
Treasure Hunting Tips	24
Environmental Concerns	27
Detector Care	28
Trouble-shooting Guide	29
Specifications	30
Warranty and Service	31
Minelab Service Repair Form	32

WARNING

THIS DOCUMENT CONTAINS
MINELAB ELECTRONICS PTY LTD
RIGHTS TECHNICAL DATA OR
RESTRICTED RIGHTS DATA OR BOTH.

© Minelab Electronics Pty Ltd

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without written permission from

Minelab Electronics Pty Ltd,
118 Hayward Avenue,
Torrenslove, SA 5031,
Australia.

Introduction

Congratulations on purchasing one of Minelab's three Musketeers. These metal detectors have been designed for general-purpose treasure hunting and their main features include **lightweight construction**, **quick shut down** between targets, **simplified controls** for operation, and **substantial depth capabilities**.

Your Musketeer detector is designed to locate valuable metal objects in high trash areas. These conditions are commonly encountered by treasure hunters in places that have been inhabited for long periods or by armies using the areas for camping grounds or battlefields.

Musketeer family of detectors have been designed to serve the needs of both the speed hunter and the slow motion hunter. Units may be moved at a "rapid hunt" pace or at a much more "leisurely" pace while enjoying the quick shut down between targets in either mode – without sacrificing depth capabilities. You will be surprised at how well the Musketeer's depth capabilities will challenge units currently on the market!

The operating frequency of your Musketeer has been set at 5 kHz. This frequency has been chosen for its high level of sensitivity to large ferrous targets such as steel trunks or guns, as well as coins, jewelry, and other valuable non-ferrous objects, while still being able to accurately discriminate against trash.

With the family of Musketeer detectors, Minelab has set out to provide you with high performance, easily operated, lightweight detectors, which are available at a realistic price. To be a successful treasure hunter you must completely understand your detector's features and operation, research your intended hunt area, and respect the environment while you are hunting. We at Minelab are confident that the Musketeers will provide you with hours of enjoyment for all types of hunting; whether it is on the beach, in the country, or in a competition hunt.

If you have any questions or comments we would like to hear from you. Please contact your local Authorised Minelab Dealer or write to us direct.

We wish you every success in your treasure hunting.

List of Parts

The box in which your Musketeer is shipped should contain the following items. When you first receive your Musketeer, please check that all of these items are in the box:

Part	Musketeer model		
	Colt	XS	XS Pro
Control Box	✓	✓	✓
8" Round Treasure Searcher coil	✓	✓	
10" Round Treasure Searcher coil			✓
3 Piece Shaft Assembly	✓	✓	✓
Black Armrest	✓	✓	✓
2 Alkaline Battery Holders	✓	✓	✓
Black PCB NiCad to Alkaline Battery Adapter	✓	✓	✓
NiCad Battery Pack			✓
Mains NiCad Charger			✓
Hipmount Bag			✓
Warranty Card	✓	✓	✓

Accessories

Although not all items are standard for the Musketeer Colt and Musketeer XS, these items may be purchased as accessories. In addition, the following items are available for you to purchase:

- 12V NiCad Battery Vehicle Charger
- Blue Minelab Cap
- Blue Minelab Poloshirt.

For further information on these and other Minelab products call your Minelab dealer.

Assembling the Minelab Musketeers

Please follow these simple instructions to assemble your new Musketeer. Refer to the drawings to identify parts and how they are positioned. If you have any difficulties, please call your dealer for further instructions.

Armrest / Upper Shaft Assembly

- Remove the black nylon bolt and wing nut (2) from the armrest (1).
- With the armrest's larger fins pointing in the same direction as the foam handgrip (4), slide the armrest (1) onto the end of the black upper shaft (3).
- Push the nylon bolt (2) through the holes and tighten the wing nut by hand.

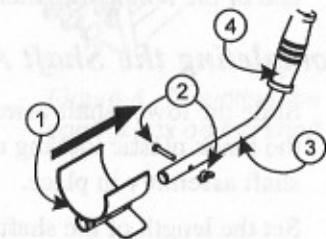


Figure 1 - The armrest and upper shaft assembly

Intermediate Shaft Assembly

- Slide the intermediate shaft (7) into the upper shaft (3). The black "V" clip (6) must be facing down along the foam handgrip section of the upper shaft (see Figures 3 and 4).
- Ensure that the two pieces click together and do not come apart easily.

Lower Shaft Assembly

- Remove the tape on the lower fiberglass tube (9) that is holding the black teardrop washers (10) in place.

NOTE:

Make sure the washers do not fall out after removing the tape.

- Remove the black nylon nut, washer and bolt (11) from the coil (12).
- With the teardrop washers in place, push the lower tube (9) into the bracket on the coil so that the holes line up.

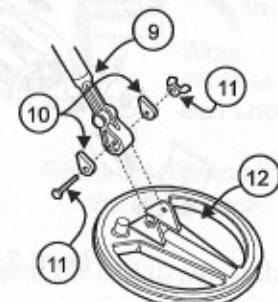


Figure 2 - The coil and lower shaft assembly

NOTE:

Ensure that the black nylon spring clip near the top of the fiberglass tube is pointing toward the rear of the coil.

- d) Push the black nylon bolt (11) through the holes in the bracket on the coil from the cable entry side, then place the washer and wing nut on the other end of the bolt and tighten it by hand.

Completing the Shaft Assembly

- a) Slide the lower shaft assembly (9) into the intermediate shaft (7). Note that the black plastic locking nut (8) may need to be loosened to get the lower shaft assembly in place.
- b) Set the length of the shaft by locking the black nylon spring clip into one of the holes provided, then tighten the plastic locking ring by hand.

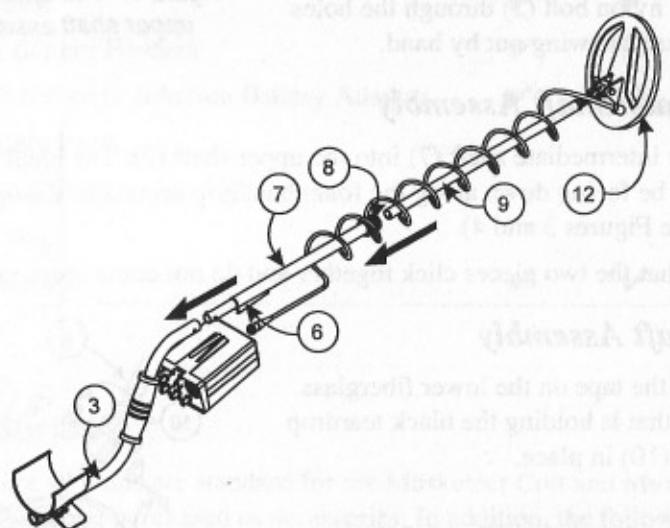


Figure 3 - Completing the shaft assembly

Shaft Mount

- a) Check that there are charged batteries in the control box (14).
- b) Position the control box (14) into the shaft "V"clip (6) then push down hard toward the coil until the control box "clicks" into place and cannot be easily removed.

- c) Begin winding the coil cable firmly around the shaft. Wind between 25 and 28 turns of the cable until it reaches the control box.

NOTE:

Leave enough slack at the bottom of the cable near the coil to adjust the coil position without straining the coil cable.

- d) Connect the cable connector (5) to the plug on the rear of the control box.

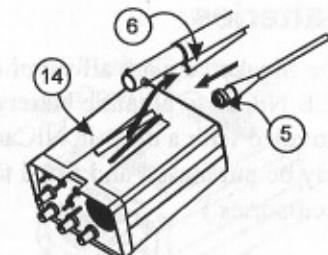


Figure 4 - Mounting the control box on the shaft

Hipmount

Hipmounting is an alternative to mounting the detector on the shaft and it significantly reduces the strain on your arm, enabling you to search for longer periods of time without undue fatigue.

Unless you own a Musketeer XS Pro, to hipmount the detector you will be required to purchase the blue hipmount bag from your dealer.

- a) Check that there are charged batteries in the control box (14).
- b) With its control panel facing outward, put the control box into the hipmount bag.
- c) Either thread the bag onto your belt or suspend it from the bag strap.
- d) Wind the coil cable firmly around the shaft. Wind 5 - 10 turns of the cable around the shaft.

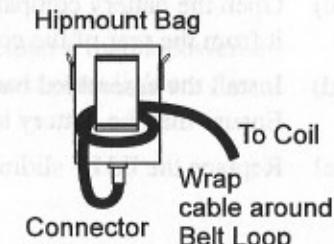


Figure 5 - Hipmounting the control box

NOTE:

Leave enough slack at the bottom of the cable near the coil to adjust the coil position without straining the coil cable.

- e) Thread the coil cable through the belt hole in the bag twice. This prevents strain being placed upon the cable and connector.
- f) Connect the cable connector (5) to the plug on the rear of the control box.

Batteries

The Musketeers are all supplied with two alkaline battery holders and a black PCB NiCad to alkaline battery adapter. In addition, the Musketeer XS Pro is provided with a drop-in NiCad battery pack and battery charger. (These items may be purchased and fitted to the Musketeer Colt and Musketeer XS as accessories.)

Installation of Alkaline Batteries

Ensure that the detector is switched "Off" before opening the battery compartment.

- Place 8 "AA" cell alkaline batteries into the supplied holders (17). Make sure that they are aligned as indicated in the holders.
- Clip the battery holders onto the alkaline adapter (18).
- Open the battery compartment lid (15) by pushing firmly down and sliding it from the rear of the control box (14).
- Install the assembled battery holders and adapter in the control box. Ensure that the battery terminals are aligned correctly.
- Replace the lid by sliding it back over the compartment.

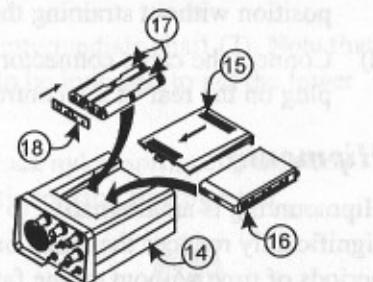


Figure 6 - Installing the Batteries

CAUTION

High-quality alkaline batteries should be used instead of standard carbon batteries. Alkaline batteries will power the Musketeers for about 40 hours. Use of headphones will extend this battery life.

Installation of NiCad Battery Pack

- Open the battery compartment lid (15) on the control box (14).
- Put the battery pack (16) into the battery compartment in the control box (14). Ensure that the holes in the pack are aligned with the spring connectors of the compartment.
- Replace the lid by sliding it back over the compartment.

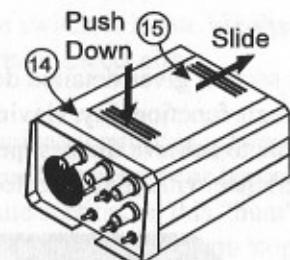


Figure 7 - Installing the NiCad Battery Pack

Low Battery Warning and NiCad Recharging

When the batteries are reaching the point at which they will no longer operate the Musketeers, a distinct sharp "pip" will sound from the speaker (or headphones) approximately every 30 seconds. When this tone is heard, there will be approximately 15 to 20 minutes of life left in the batteries. It is recommended that the batteries be replaced as soon as possible to avoid missing any targets.

The NiCad battery charger can be recharged using either a mains-powered charger or a 12V charger that can be plugged into the cigarette lighter of your vehicle.

The Musketeer Colt

Controls

This section gives detailed descriptions of the controls of the Musketeer Colt and their functionality. Having knowledge of these controls means that you will be able to achieve the best performance from your detector. As you gain experience with your detector it may be useful to refer back to this section.



Figure 8 - The Musketeer Colt Control Panel

Sensitivity Control and On / Off Switch



This knob is located in the middle left-hand side of the control box. It allows the unit to be turned on and off as well as controlling the sensitivity. This control is often thought of in terms of a depth control and it is to a point, but it also makes the unit more sensitive to interference caused by such things as ground chemistry "mineralization" or electrical fields.

In most cases, set this control to its maximum, the most clockwise position. If interference is received in the form of popping or chattering it is advisable to turn the knob counter-clockwise "just" enough to remove the interference.

NOTE:

When detecting in areas of extreme mineralization or electrical interference, to reduce the sensitivity level turn the control in a counter-clockwise direction.

Discriminate / All Metals Switch



The Discriminate / All Metals mode switch is located in the center of the control panel. This switch selects either "Discriminate" or "All Metals".

In "Discriminate" mode, the Discriminate control is active and can be adjusted so that the Musketeer Colt accepts or ignores certain metal objects, as described in the Discriminate section. In this "hunt" mode, the coil must be moving over the ground to detect a target. If you stop moving the coil when over a target the signal will "disappear".

In "All Metals" mode, the Discriminate control has no effect and the Musketeer Colt will respond in the same way to all types of metal. "All Metals" mode is also useful if you are searching for ferrous targets.

Discriminate Control



The Discriminate control is located at the bottom right of the control panel. This control is used when in "Discriminate" mode to "discriminate" or "ignore" unwanted metal targets.

Metal objects fall into two broad categories: ferrous and non-ferrous. A magnet can be used to determine if an object is a ferrous or non-ferrous metal; ferrous metals will be attracted to the magnet while non-ferrous metals will not.

In "Discriminate" mode, the Musketeer Colt will discriminate ferrous objects, and only provide a signal for a non-ferrous object. If the Discriminate control is set to "1", ferrous metals will be "ignored" and the machine will not produce a "signal beep". (Large ferrous objects may produce short "pops" or "clicks".) However, non-ferrous objects will give a "signal beep" or be "accepted".

Typical ferrous objects encountered by treasure hunters are nails, screws, washers, bits of wire, etc. These objects are generally not considered to be of value, so it is a distinct advantage to be able to ignore these objects while detecting. Objects that will cause the Musketeer Colt to produce a "signal beep" will be non-ferrous metals. This includes such items as aluminum foil, most jewelry, pull-tabs, coins, bottle tops, gold, silver, brass, etc. Not all of these non-ferrous objects are considered valuable. Therefore, by using the Discriminate control, the Musketeer Colt can be adjusted to ignore some of the less valuable non-ferrous objects while still locating the more valuable targets.

By turning the Discriminate control clockwise, non-ferrous objects of increasing conductivity will be ignored. The Musketeer Colt uses the electrical conductivity of the object to determine the type of metal detected and, based upon the Discriminate control setting, will either ignore or accept the object.

The following diagram shows some common objects and where the Discriminate control has to be set to ignore them.

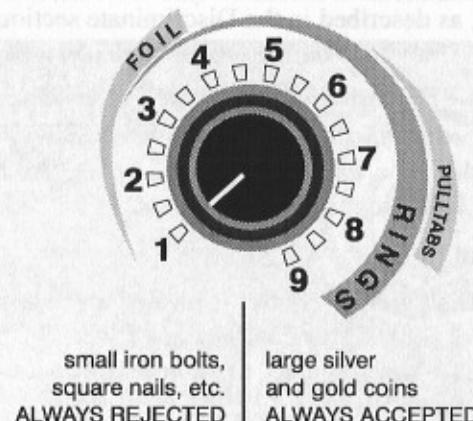


Figure 9 - Discriminate control examples

As you can see from the diagram, items such as gold rings cover a large area of the Discriminate control. This is because fine rings are less conductive than heavier rings. So if you set the Discriminate control to ignore pull-tabs you will also ignore some fine rings and other jewelry.

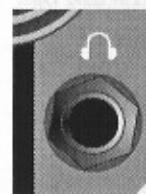
The setting of the Discriminate control is relative to the types of objects that you wish to hunt for, and the amount of trash that you are prepared to detect. For example, if you are hunting for fine white gold rings you may also find foil.

If you do not want to dig old bottle caps but dig brass buttons or copper coins, the Discriminate control is set higher (approximately at number 7), but most fine white gold rings, foil, and some yellow gold rings will also be ignored.

How much trash are you willing to dig up to get a gold coin? If your preference is none, then turn your Discriminate control to the full clockwise position and your trash ratio will be very low; however, you will not find most gold rings, nickels, or brass buttons.

You will find silver and larger gold coins. And always remember that another person detecting behind you who is willing to dig a little more trash will find these items that you have passed over.

Audio Output



The audio output of the Musketeer Colt is available through either an in-built loudspeaker or via a 1/4" stereo headphone jack. When the headphones are plugged in, the loudspeaker is disconnected.

Headphones are recommended for serious treasure hunting as they are more sensitive to slight target signals than the loudspeaker and shield your ears from external noises which can be distracting. Using headphones will also increase battery life.

Headphones used should be of a low impedance. The socket will accept most stereo headphones with a 1/4" jack. If the headphones have a "Stereo/Mono" switch, set it to "Stereo".

Figure 10 - The Minelab Musketeer, KB and KC have a 1/4" stereo headphone jack.

Conductivity Control and the DGT Switch

The knob is located in the middle left hand side of the control panel and allows the unit to be turned to an off position or conductive conductivity. This control is often thought of as "conductivity" or "conductivity discrimination" and this is a point that it also does. The conductive setting is for those who prefer to hunt for gold coins and other conductive "minerals" or "conductivity".

Most coins, this control should never be "on" because the most conductive coin is gold and gold is the most conductive metal. If you are hunting for gold coins, this control should be "on" because gold is the most conductive metal.

Operating Instructions for the Minelab Musketeer Colt

a) "Discriminate" Mode

- Install charged batteries.
- Set the All Metals / Discriminate mode switch to the "Discriminate" position.
- Turn the Musketeer Colt "On" by turning the Sensitivity control in a clockwise direction. Turn this control to the most clockwise or "maximum" setting.
- Select the level of "discrimination" you wish to have by setting the Discriminate control.

You are now ready to hunt.

b) "All Metals" Mode

- Install charged batteries.
- Set the All Metals / Discriminate mode switch to the "All Metals" position.
- Turn the Musketeer Colt "On" by turning the Sensitivity control in a clockwise direction. Turn this control to the most clockwise or "maximum" setting.

You are now ready to hunt.

The Musketeer XS and XS Pro Controls

This section gives detailed descriptions of the controls of the Musketeer XS and Musketeer XS Pro and their functionality. The Musketeer XS and XS Pro have the same features and controls, the difference between the models is in the configuration of the accessory items supplied with each machine.

Having knowledge of these controls means that you will be able to achieve the best performance from your detector. As you gain experience with your detector it may be useful to refer back to this section.

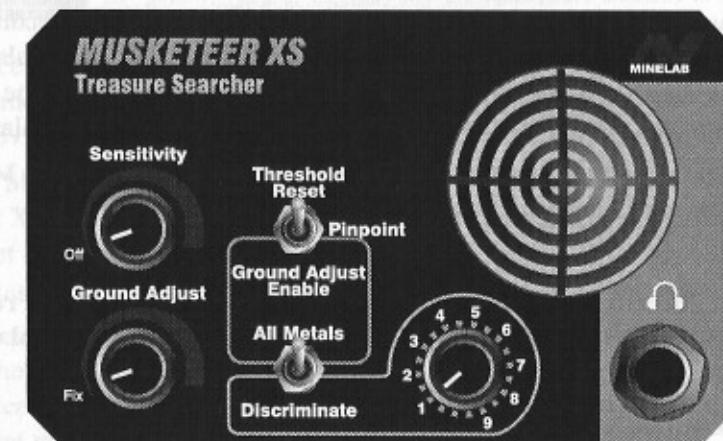


Figure 10 - The Minelab Musketeer XS and XS Pro Control Panel

Sensitivity Control and On / Off Switch



This knob is located in the middle left-hand side of the control box and it allows the unit to be turned on and off as well as controlling the sensitivity. This control is often thought of in terms of a depth control and it is to a point, but it also makes the unit more sensitive to interference caused by such things as ground chemistry "mineralization" or electrical fields.

In most cases, this control should be set to "maximum", the most clockwise position. If interference is received in the form of popping or chattering, turn the knob counter-clockwise just enough to remove the interference.

NOTE:

When detecting in areas of extreme mineralization or electrical interference, to reduce the sensitivity level turn the control in a counter-clockwise direction.

Ground Adjust Control

This control allows you to adjust the ground balance of the Musketeer XS and XS Pro in order to compensate for changes in the level of ground mineralization. At its most counter-clockwise position this control switches into the "Fixed" position. When in this position, the Musketeer XS and XS Pro are fixed ground balance detectors and require no ground control adjustment.

If while detecting in this setting the level of ground mineralization becomes high, the Musketeer XS and XS Pro will produce "ground noises" or false signals. To reduce these ground noises, it will be necessary to switch the detector out of the "Fixed" position and manually adjust the ground balance.

Ground balance can be adjusted in either "Discriminate" mode or "All Metals" mode when in the "Ground Adjust Enable" position.

CAUTION

You cannot effectively ground balance the Musketeer XS and XS Pro while in the "Pinpoint" position. Turning the ground adjust control while in this position will cause the detector to become very erratic.

Raise and lower the search coil approximately $\frac{1}{2}$ - 6 inches (1-15 cm) above the ground while listening for changes in sound. Turn the Ground Adjust control to the most clockwise position. Slowly turn the Ground Adjustment counter clockwise while continuing to raise and lower the coil, until the audio response from mineralisation is "just" eliminated.

In areas of extreme mineralization, you may not be able to completely "balance out" the effects of ground mineralization. In this case, set the Ground Adjust control to the position where the sound varies the least as the coil is raised and lowered and then reduce the level of sensitivity to compensate for the excess mineralization.

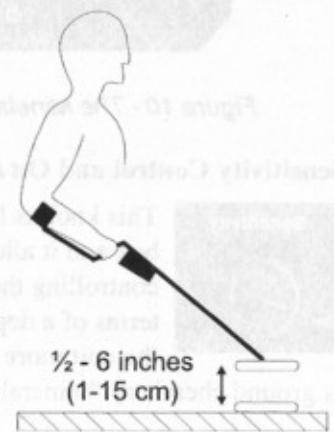


Figure 11 - Raising and Lowering the Search Coil

While detecting, changes in the ground mineralization will occur causing the detector to produce "ground noises". It will then be necessary for you to re-adjust the ground balance using the procedure described above.

It is important to note that the more accurately you ground balance the detector, the deeper you will detect and the more objects you will find.

Discriminate / All Metals Switch

The Discriminate / All Metals mode switch is located in the center of the control panel and is used to selects either "Discriminate" or "All Metals".

In "Discriminate" mode, the Discriminate control is active and can be adjusted so that the Musketeer XS and XS Pro accept or ignore certain metal objects, as described in the Discriminate section. In this "hunt" mode, the coil must be moving over the ground to detect a target. If you stop moving the coil when over a target, the signal will "disappear".

In "All Metals" mode, the Discriminate control has no effect and the Musketeer XS and XS Pro will respond in the same way to all types of metal. The coil need not be moving to maintain a target sound. If the coil is held stationary over a target, the sound will remain. This is ideal for target pinpointing.

"All Metals" mode is also useful if you are searching for ferrous targets. In this mode the Reset Switch is used to help accurately determine the location of the target center. This is useful to reduce the amount of digging required to recover the target you have located.

Discriminate control

The Discriminate control is located at the bottom right of the control panel. This control is used when in "Discriminate" mode to "discriminate" or "ignore" unwanted metal targets.

Metal objects fall into two broad categories: ferrous and non-ferrous. A magnet can be used to determine if an object is a ferrous or non-ferrous metal; ferrous metals will be attracted to the magnet while non-ferrous metals will not.

When in "Discriminate" mode, the Musketeer XS and XS Pro will discriminate ferrous objects, and only provide a signal from a non-ferrous object. If the Discriminate control is set to "1", ferrous metals will be "ignored" and the machine will not produce a "signal beep".

(Large ferrous objects may produce short "pops" or "clicks".) However, non-ferrous objects will give a "signal beep" or be "accepted".

Typical ferrous objects encountered by treasure hunters are nails, screws, washers, bits of wire, etc. These objects are generally not considered to be of value, so it is a distinct advantage to be able to ignore these objects while detecting.

The objects that will cause the Musketeer XS and XS Pro to produce a "signal beep" will be non-ferrous metals. This includes such items as aluminum foil, most jewelry, pull-tabs, coins, bottle tops, gold, silver, brass, etc. Not all of these non-ferrous objects are considered valuable. Therefore, by using the Discriminate control, the Musketeer XS and XS Pro can be adjusted to ignore some of the less valuable non-ferrous objects while still locating the more valuable targets.

By turning the Discriminate control clockwise, non-ferrous objects of increasing conductivity will be ignored. The Musketeer XS and XS Pro use the electrical conductivity of the object to determine the type of metal detected and, based upon the Discriminate control setting, will either ignore or accept the object.

The following diagram shows some common objects and where the Discriminate control has to be set to ignore them.

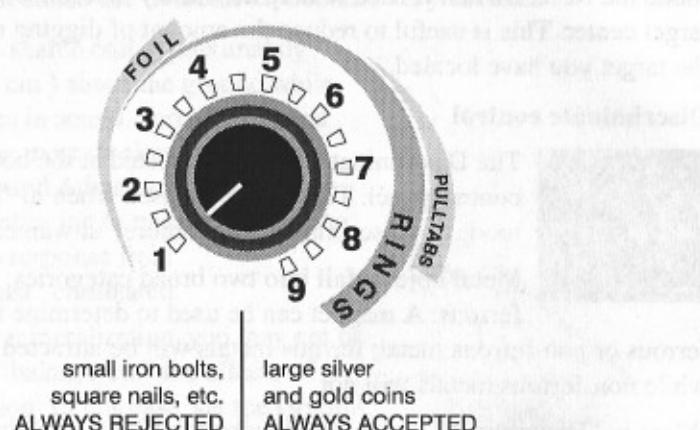


Figure 12 - Discriminate control examples

As you can see from the diagram, items such as gold rings cover a large area of the Discriminate control. This is because fine rings are less conductive than heavier rings. So if you set the Discriminate control to ignore pull-tabs you will also ignore some fine rings and other jewelry.

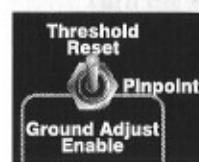
The Discriminate control setting is relative to the types of objects that you wish to hunt for and the amount of trash that you are prepared to detect. For example, if you are hunting for fine white gold rings you may also find foil.

If you do not want to dig old bottle caps but dig brass buttons or copper coins, the Discriminate control is set higher (approximately at number 7), but most fine white gold rings, foil, and some yellow gold rings will also be ignored.

How much trash are you willing to dig up to get a gold coin? If your preference is none, then turn your Discriminate control to the full clockwise position and your trash ratio will be very low; however, you will not find most gold rings, nickels, or brass buttons.

You will find silver and larger gold coins. And always remember that another person detecting behind you who is willing to dig a little more trash will find these items that you have passed over.

Ground Adjust Enable Setting



This position is used for ground balancing while detecting in "All Metals" mode. While in this position, use the ground adjust control to balance the Musketeer XS or XS Pro to the level of mineralization in the ground. The ground balancing procedure is the same as described earlier while in "Discriminate" mode.

Pinpoint

The Pinpoint feature works only while the Musketeer XS or XS Pro are in "All Metals" mode. While in this position, the Musketeer XS and XS Pro are "non-motion" detectors. In other words, you do not have to be moving the coil to detect an object. The advantage of this feature is that it enables you to pinpoint exactly the location of a target before digging the hole. This will save you time in recovering the target and is also very "environmentally friendly".

Sometimes while in this mode the pitch of the background sound becomes very loud and erratic. When this occurs you will need to flick and hold for 2 seconds the "Threshold Reset" switch to "retune" the Musketeer XS and XS Pro.

Threshold Reset Switch

The Threshold Reset or "Retune" switch is located at the center of the control panel. It is spring loaded and will flip back to its normal position when you let it go. This control is only operational while the Musketeer XS or XS Pro are in "All Metals" mode and is used in combination with the Pinpoint position as described above, to assist in accurate target location.

In "All Metals" / Pinpoint mode the Musketeer's circuitry helps maintain a silent threshold by automatically adjusting the sensitivity when mineralization is present. This circuitry can also consider a target close to the coil as a change in mineralization, and therefore alter the sensitivity of the detector.

The detector will automatically restore its sensitivity after a period, or the Threshold Reset switch can be activated to immediately restore the sensitivity once the coil has been moved away from the target. This will ensure the optimal use of the "All Metals" / Pinpoint mode.

Audio Output



The audio output of the Musketeer XS and XS Pro is available through either an in-built loudspeaker or via a 1/4" stereo headphone jack. When the headphones are plugged in, the loudspeaker is disconnected.

Headphones are recommended for serious treasure hunting as they are more sensitive to slight target signals than the loudspeaker and shield your ears from external noises which can be distracting. The use of headphones will also increase battery life.

Headphones used should be of a low impedance. The socket will accept most stereo headphones with a 1/4" jack. If the headphones have a "Stereo/Mono" switch, set it to "Stereo".

Operating Instructions for the Minelab Musketeer XS and XS Pro

a) "Discriminate" Mode

- Install charged batteries.
- Set the All Metals / Discriminate mode switch to "Discriminate".
- Turn the Ground Adjust control to "Fixed".

- Turn the Musketeer XS or XS Pro "On" by turning the Sensitivity control clockwise. Turn this control to the most clockwise or "maximum" setting.
- Raise and lower the coil approximately 1/2 - 6 inches (1-15 cm) above the ground, listening carefully. If the pitch of the background sound changes, the level of mineralization in the ground is too great to operate the Musketeer XS or XS Pro in the "Fixed" position. If this is the case, turn the Ground Adjust control to the most clockwise position and begin the ground balance procedure described earlier.
- Select the level of "discrimination" you wish to have by setting the Discriminate control.

You are now ready to hunt.

b) "All Metals" Mode

- Install charged batteries.
- Set the All Metals / Discriminate Mode switch to "All Metals".
- Switch to the "Ground Adjust Enable" position.
- Turn the Ground Adjust control to "Fixed".
- Turn the Musketeer XS or XS Pro "On" by turning the Sensitivity control clockwise. Turn this control to the most clockwise or "maximum" setting.
- Raise and lower the coil approximately 1/2 - 6 inches (1-15 cm) above the ground, listening carefully. If the pitch of the background sound changes, the level of mineralization in the ground is too great to operate the Musketeer XS or XS Pro in the "Fixed" position. If this is the case, turn the Ground Adjust control to the most clockwise position and begin the ground balance procedure described earlier.
- Once ground balanced, switch to "Pinpoint" mode.

You are now ready to hunt.

Practicing the Controls

We suggest you first take some time to become familiar with how your Musketeer responds to various metal objects.

Gather a collection of different metal objects such as a rusted nail, pull-tab, brass button, aluminum foil, and some different types of relics, e.g. bullets, buckles.

Take the unit outside, away from known electrical devices or metal objects and support the Musketeer so that objects can be easily moved past the coil. Then:

- a) Ensure the Mode Switch is in Discriminate.
- b) Turn the Discriminate control to "1".
- c) Turn the Sensitivity Control to "maximum". If excessive interference is encountered, turn the Sensitivity control counter-clockwise until it disappears.
- d) One at a time pass the test objects across the coil. The Musketeer should "beep" on the non-ferrous ones, but not on most ferrous objects. Large ferrous objects may produce short "pops", "clicks" or even "beeps". To reject these items you may need to turn the discriminator knob further in a clockwise direction.
- e) Now turn the Discriminate control progressively clockwise in steps and pass the objects over the coil and see when certain objects are rejected.

By experimenting with different settings of the Discriminate control you will see where to set the Musketeer to accept or reject the targets you wish to hunt for.

Now for some treasure hunting. Take the Musketeer to the site you wish to hunt. Then:

- f) Place the coil flat on the ground and flick the Mode Switch to "Discriminate".
- g) Turn your Discrimination knob to your preferred setting. Remember this is a trash to treasure ratio, so select it based on how much trash you are willing to dig to find your first good item. You can always turn it up or down during use.

- h) Now turn on the Sensitivity control to "maximum". Remember it is suggested that you hunt with maximum sensitivity as much as possible for an area without random signals occurring. This control can be altered during hunting if you encounter more random signals in one area than another.
- i) Lift the search coil approximately $\frac{1}{2}$ - 1 inch (1 - 2.5 cm) from the ground — enough to take the weight off the coil. Now swing the search coil from side to side, **keeping the coil level and parallel to the ground surface throughout the swing**.
- j) Listen to the reaction to each target, noting the depth and condition of the ground as you recover it. Carry a small notepad to take notes and review these notes at some later time to improve your knowledge of how your Musketeer performs.

As you become more experienced in using the Musketeer, you will notice that your trash ratio will drop, even though you may not be increasing the discrimination. This is because you have become more tuned to the target signals and know how the Musketeer responds.

Treasure Hunting Tips

Your Musketeer detector will perform at its best when the Treasure Searcher coil is kept in contact with the ground. If you are not yet an experienced operator, you should practice maintaining a constant coil height at the extremity of each swing; maintaining contact with the ground will make this easier. This is important as variation in coil height at the end of each swing can cause confusing sounds and will reduce detection depth.

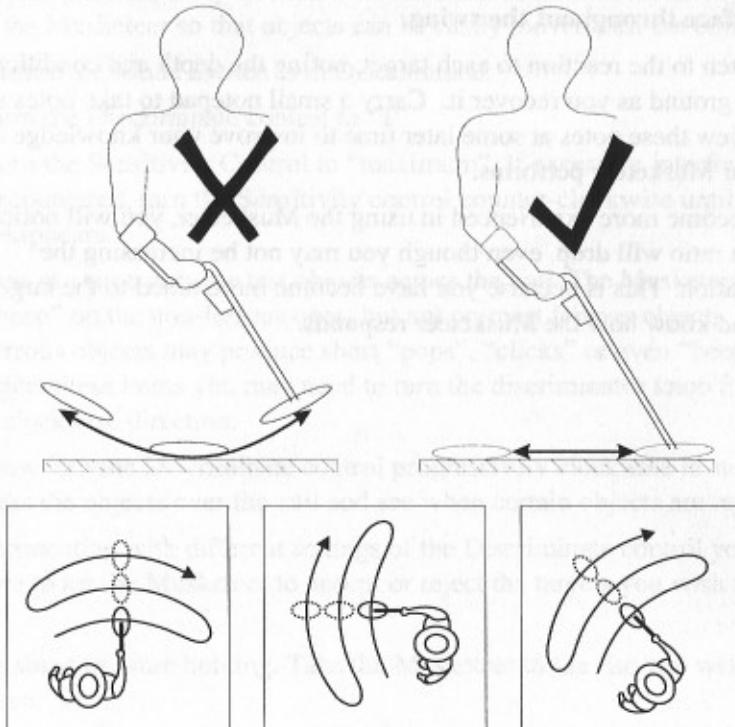


Figure 13 - Sweeping the Coil

NOTE:

Each sweep of the coil should overlap the last one. This will ensure good ground coverage.

Keeping the Treasure Searcher coil in contact with the ground will increase detection depth and response to small objects.

Pinpointing with the Musketeer Colt

When the approximate location of the target has been determined, move the coil slowly over the target. The audio tone will increase in volume while moving towards the target and decrease in volume as you pass it. The tone will be loudest when the coil is directly over the target.

Quite often the detector will be producing its maximum volume for a broad area over the target. This generally indicates that the target is near the surface or is quite large. The open design of the Treasure Searcher coil makes it easy to mark the ground directly about the target to aid recovery.

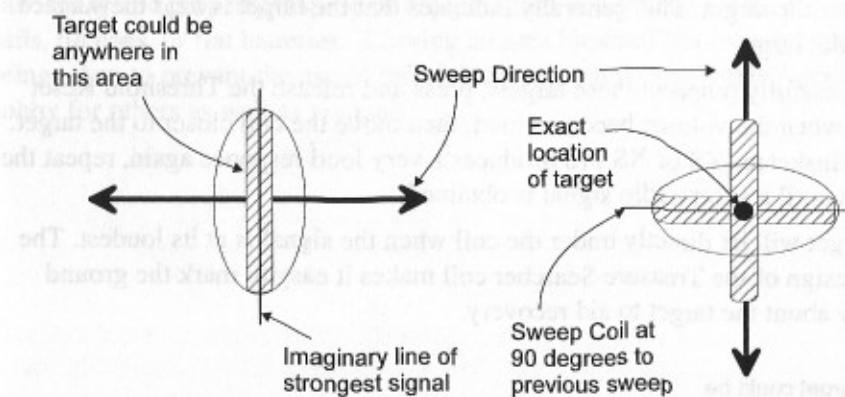


Figure 14 - Pinpointing the Target with the Musketeer Colt

Pinpointing with the Musketeer XS and XS Pro

When the approximate location of the target has been determined in "Discriminate" mode, switch to the All Metals "Pinpoint" position. Hold the coil about one foot above the ground, covering the target. Press and release the Threshold Reset switch. Then move the coil slowly over the target. The audio tone will increase in volume while moving towards the target and decrease in volume as you pass it. The tone will be loudest when the coil is directly over the target.

Quite often the detector will be producing its maximum volume for a broad area over the target. This generally indicates that the target is near the surface or is quite large.

To successfully pinpoint these targets, press and release the Threshold Reset switch when the volume becomes loud, then move the coil closer to the target. If the Musketeer XS or XS Pro produces a very loud response again, repeat the process until a short audio signal is obtained.

The target will be directly under the coil when the signal is at its loudest. The open design of the Treasure Searcher coil makes it easy to mark the ground directly about the target to aid recovery.

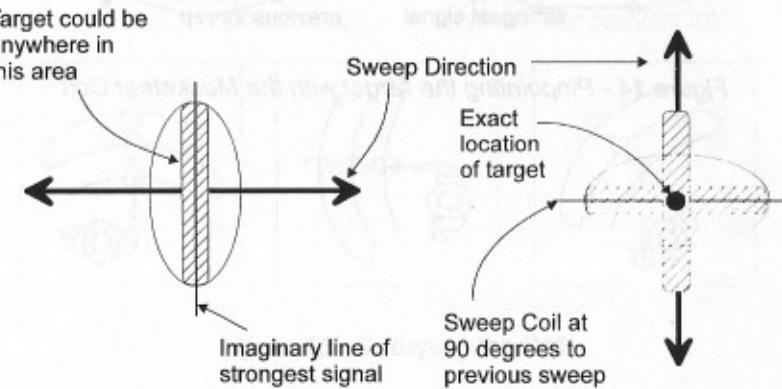


Figure 15 - Pinpointing the Target with the Musketeer XS or XS Pro

Environmental Concerns

Firstly, it should be pointed out that treasure hunting with a metal detector is the most environmentally friendly way to recover coins, rings, and other treasure items. However, it is important to leave an area that you have searched in the same condition as you found it.

All holes that have been dug must be properly refilled. Not only is it environmentally unacceptable to not fill in your holes, it is also very dangerous. There are special tools to enable you to recover targets easily from grassed areas without digging large holes.

Take away and properly dispose of any junk that you find or produce, such as nails, tin cans, or flat batteries. Leaving an area "scarred" can result in action being taken to prevent the use of metal detectors, which spoils this fascinating hobby for others as well as yourself.

Detector Care

The Musketeers are high-quality electronic instruments, finely engineered and packaged in a durable housing. Taking proper care of them is mostly common sense.

- **Do not leave batteries in the control box when the detector is not in use for a period exceeding two weeks.** Damage caused by leaking batteries would be severe and would void the warranty through user negligence.
- If temperatures are very high, **do not leave the detector in the sun for longer than necessary.** Covering it when not in use will help protect it. Try to avoid leaving it in a closed trunk or in the car sitting in sunlight.
- While the control box has been designed to be water-resistant, it is not waterproof. Avoid wetting it unnecessarily. **Never allow the box to come into contact with gasoline or other oil-based liquids.**
- **Keep the unit clean and dry** and avoid getting sand and grit into the shafts or the tightening nuts. Do not use solvents to clean the detector. Use a damp cloth with mild soap detergent.
- **Batteries.** Flat or faulty batteries cause many detector problems. Ensure that you use only quality alkaline batteries and that they are replaced when the warning signal indicated through the headphones or speaker is heard.
- **Cables.** Ensure the coil cable is in good condition and not subject to undue stress. The coil connector at the base of the cable must be firmly tightened.

Figure 10 - Operating the Target with the Musketeer X3 or X3 Pro

Trouble-shooting Guide

Fault	Solution
No Sound	Check batteries and battery connections Ensure battery lid is completely closed Check headphones and their connection
Erratic Noises	Check battery charge and battery connections Ensure coil plug is tightened firmly Reduce the sensitivity by turning counter-clockwise Switch out of "Fix" ground balance position Check and adjust the ground balance Check headphones and their connection
No Target Response	Check for sand or grit between coil cover and coil Ensure unit is turned "On" Check battery charge and battery connections Check coil connection Check headphones and their connection

In the unfortunate circumstance that you need to return your detector to Minelab for service, please fill out the Minelab Service Repair Form on page 32 and enclose it with the detector. Please supply as much detail as possible about the fault as this will assist our service engineers to rectify the problem quickly and efficiently.

Specifications

These specifications are subject to change without notice.

Length	Extended	53" (1350 mm)
	Unextended	33" (840 mm)
Weight	Control Box (excl. Batteries)	560 g
	8" Treasure Searcher Coil	1610 g
	10" Treasure Searcher Coil	1800 g
Batteries	Alkaline Cells	Eight 1.5V "AA"
	NiCad Battery Pack	12V, 600 mA/Hr
Coil	8" Round "Double D" waterproof	Colt and XS
	10" Round "Double D" waterproof	XS Pro
Headphones	Impedance	8 W
	Jack - Stereo / Mono	1/4"
Frequency	Transmission, sine	5 kHz
Ground Rejection	Fixed	
	Manual Ground Adjust *	Pot. 1 turn
Search Modes	Discriminate, All Metals, Pinpoint *	
Controls	Sensitivity, On / Off	Pot. and switch
	Ground Adjust *	Pot. and switch
	Discriminate	Pot. 1 turn
	All Metals / Discriminate	Switch 2 Pos.
	Pinpoint *	Switch 3 Pos.
Warranty	Control Box	2 years
	Coil	1 year
Patents	AUS 595835, others pending.	

* Not available on the Musketeer Colt

Warranty and Service

There is a two-year parts and labour warranty for the electronic control box of the Musketeers. Refer to your Warranty Card for further details. The Treasure Searcher coil is warranted for one year. Refer to your supplier or Minelab for service, either in or out of warranty.

NOTE:

This warranty is not transferable, nor is it valid unless the enclosed warranty registration card is returned to Minelab Electronics Pty Ltd or an authorised Minelab Electronics Pty Ltd regional distributor within 14 days of the original purchase.

The Minelab warranty does not cover damage caused by accident, misuse, neglect, alteration, modifications, or unauthorised service. For specific details of the Minelab warranty, please refer to the machine's "Product Warranty Card".

Minelab Service Repair Form

Today's Date:

Detector Model: Serial No.:

Purchased From:

Purchase Date:

Faulty Part(s):

Description of Fault:

Owner's Name:

Address:

Phone: Day () Home ()

Fax: () Email: